

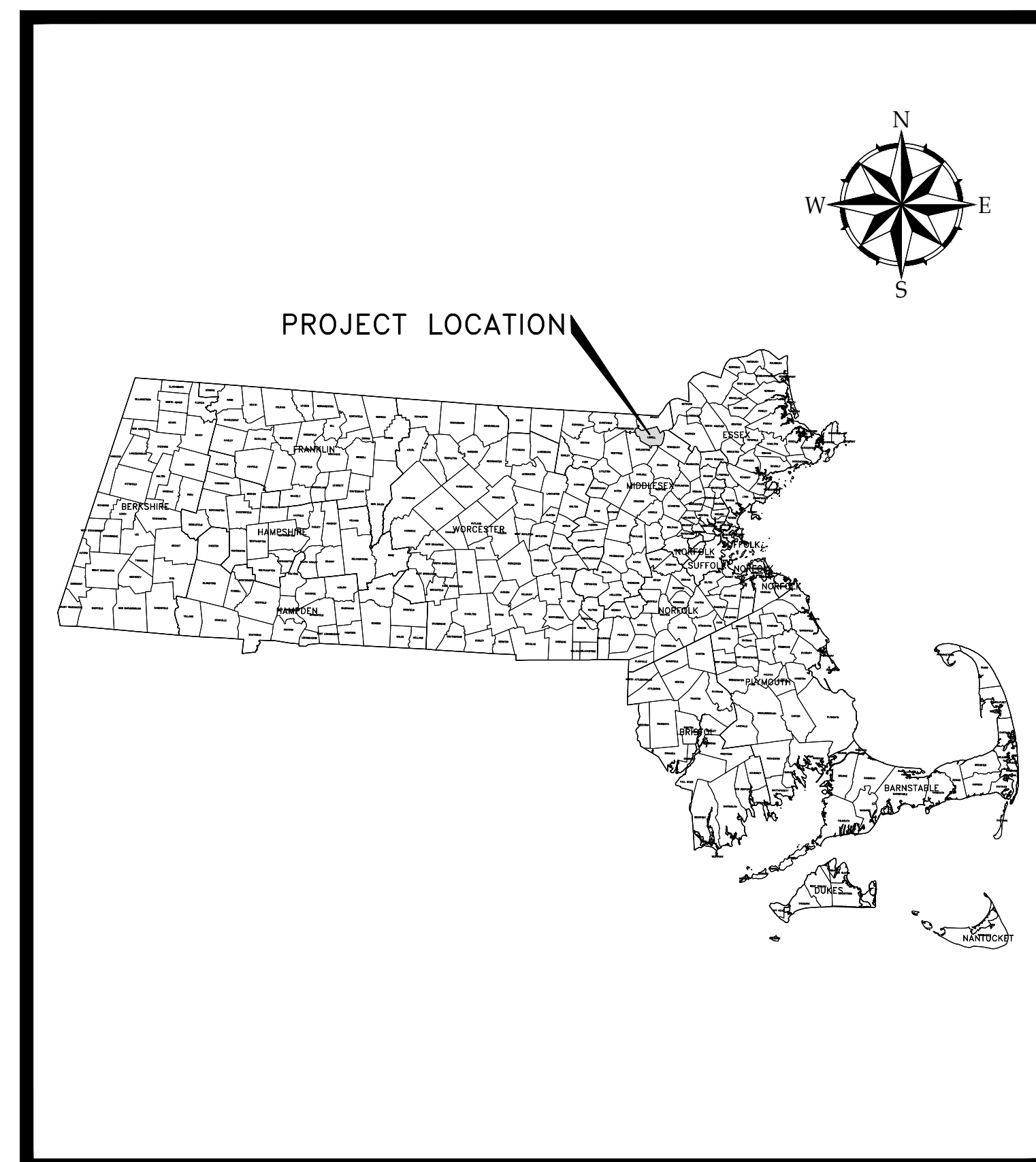
LOWELL REGIONAL WATER UTILITY LOWELL, MASSACHUSETTS DWSRF #6810 TRANSMISSION MAIN CONNECTION

BID SET - NOT FOR CONSTRUCTION

IFB 22-94

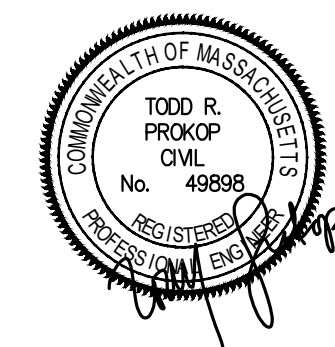
PROJECT NO.
0232782.10

APRIL 2022



PROJECT LOCATION MAP

25 0 25 50
scale mile



40 Shattuck Road, Suite 110
Andover, Massachusetts 01810
866.702.6371 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS



SOURCE: USGS TOPOGRAPHIC MAP
SITE LOCATION MAP

1 0 1
scale mile
2000 0 2000 4000
scale feet

GENERAL NOTES

1. PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO PERFORM THE WORK INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES.

2. THE LOCATION, TYPE AND SIZE OF EXISTING PIPES, DUCTS, CONDUITS, UTILITIES AND UNDERGROUND STRUCTURES SHOWN ON THE DRAWINGS ARE NOT WARRANTED TO BE EXACT, NOR IS IT WARRANTED THAT ALL UNDERGROUND STRUCTURES ARE SHOWN. CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS, SIZES AND DEPTHS.

3. COORDINATE CONSTRUCTION ACTIVITIES WITH THE LOWELL REGIONAL WATER UTILITY (LRWU), LOWELL REGIONAL WASTEWATER UTILITY, LOWELL ENGINEERING DEPARTMENT, LOWELL DEPARTMENT OF PUBLIC WORKS (DPW), MASSDOT, LOWELL POLICE DEPARTMENT, LOWELL FIRE DEPARTMENT, UTILITY COMPANIES, AND THE ENGINEER.

4. ENSURE CONSTRUCTION OPERATIONS DO NOT INTERFERE WITH THE LRWU'S ABILITY TO MEET DEMAND. COORDINATE ANY PROCESS DISTURBANCES WITH LRWU. PROVIDE A MINIMUM OF TWO WEEKS NOTICE PRIOR TO REQUESTING ANY SHUT DOWN.

5. RESTORE ALL AREAS DISTURBED BY CONTRACTOR'S OPERATIONS TO ORIGINAL OR BETTER CONDITION UNLESS NOTED OTHERWISE (GRAVEL, CONCRETE, PAVEMENT, GRASS, ETC.).

6. ALL NEW BURIED PIPE SHALL HAVE MINIMUM 5 FEET OF COVER UNLESS NOTED OTHERWISE OR APPROVED BY THE ENGINEER. BURIED PIPE WITH LESS THAN 4 FEET OF COVER SHALL HAVE A MINIMUM OF 4 INCHES OF RIGID INSULATION WITH AN R-VALUE OF R-20 INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

7. PROTECT PROPERTY IRONS AND PROPERTY MONUMENTS FROM DAMAGE. IF DISTURBED, THE PROPERTY IRON OR PROPERTY MONUMENT WILL BE RESET BY A REGISTERED LAND SURVEYOR APPROVED BY THE OWNER, AT THE CONTRACTOR'S EXPENSE.

8. TAKE ALL NECESSARY PRECAUTIONS TO PREVENT EQUIPMENT FLUIDS FROM REACHING ANY WATER RESOURCE AREA. FLUID DISCHARGED INADVERTENTLY SHALL BE IMMEDIATELY CLEANED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS, AS DETERMINED BY A LICENSED SITE PROFESSIONAL APPROVED BY THE OWNER.

9. SUPPORT ALL PIPING AS DETAILED OR SPECIFIED INCLUDING SMALL DIAMETER PIPE, TUBING AND CONDUIT.

10. LOCATION OF EXISTING UTILITIES, BUILDINGS, AND EQUIPMENT LAYOUTS ARE BASED ON BEST INFORMATION AVAILABLE. INFORMATION INCLUDES PLANS PROVIDED BY OWNER AND UTILITY COMPANIES, TOPOGRAPHIC SURVEY DATA, GROUND CONTROL AND UTILITY SURVEY PROVIDED BY CIVIL DESIGN CONSULTANTS, INC., JUNE 2021 (HORIZONTAL DATUM: NAD 83, VERTICAL DATUM: NGVD 29) AND FIELD MEASUREMENTS PERFORMED BY WOODARD & CURRAN. CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.

11. VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO START OF CONSTRUCTION.

12. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO STRUCTURES AND EQUIPMENT NOT SCHEDULED FOR REMOVAL.
13. PROVIDE A DETAILED CONSTRUCTION SCHEDULE TO THE OWNER FOR REVIEW AND APPROVAL BY THE CITY.

14. EXISTING FACILITIES (I.E. FENCES, GUARDRAILS, TREES, POLES, SIGNS, LIGHT POLES, MAIL BOXES, ETC.) SHALL BE REMOVED AND REPLACED IN KIND, IN ACCORDANCE WITH LOCAL AND STATE REQUIREMENTS, OR PROTECTED AS REQUIRED DURING CONSTRUCTION. THE ASSOCIATED COSTS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

15. CONTRACTOR TO PROVIDE TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH SPECIFICATIONS, MASSDOT AND LOCAL REQUIREMENTS. THE CONTRACTOR MUST MAINTAIN CONTINUOUS TRAFFIC FLOW (MINIMUM OF ONE LANE EACH DIRECTION) DURING CONSTRUCTION. THE ASSOCIATED COSTS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

16. ALL CURB DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AND SHALL CONFORM TO MASSDOT SPECIFICATIONS.

17. LOOP DETECTORS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AND SHALL CONFORM TO MASSDOT SPECIFICATIONS. THE ASSOCIATED COSTS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. LOOP DETECTORS MUST BE FUNCTIONAL 2-WEEKS AFTER TEMPORARY AND PERMANENT PAVING OF INTERSECTION.

18. CONTRACTOR SHALL COMPACT TRENCHES IN ACCORDANCE WITH REQUIREMENTS OF SECTION 31 00 00 OF THE SPECIFICATIONS.

19. CONTRACTOR SHALL APPLY AND PAY FOR LOCAL AND STATE PERMITS NECESSARY TO COMPLETE THE WORK. ALL ASSOCIATED COSTS SHALL BE INCIDENTAL TO THE MOBILIZATION ITEM IN THE BID FORM.

20. WHERE NEW WATER MAINS OR APPURTENANCES ARE TO BE CONNECTED TO EXISTING PIPE, CONTRACTOR SHALL CUT AND REMOVE THE EXISTING PIPE AS NECESSARY TO INSTALL THE NEW WORK. TEST PIT LOCATIONS WHERE NEW MAINS CONNECT TO EXISTING MAINS TO VERIFY PIPE DIAMETER AND MATERIAL TYPE.

21. WHERE CUT-IN OF VALVES AND/OR HYDRANT ARE SHOWN, CONTRACTOR SHALL PROVIDE TEMPORARY CAPS, COUPLINGS OR REDUCERS AS REQUIRED TO CUT-IN VALVES AND HYDRANTS, TO ESTABLISH INSTALLATION OR TEMPORARY BYPASS FEEDS REQUIRED TO COMPLETE THE WORK. TEMPORARY CAPS, COUPLINGS AND REDUCERS ARE CONSIDERED INCIDENTAL TO THE WORK AND WILL NOT BE CONSIDERED FOR PAYMENT.

22. WATER SERVICE LOCATIONS ARE UNKNOWN AND SHALL NOT BE MARKED BY THE DPW. CONTRACTOR SHALL TEST PIT TO LOCATE SERVICES WHERE DIRECTED BY OWNER.

23. FINAL LOCATIONS FOR NEW WATER MAINS, HYDRANTS, VALVES AND FITTINGS SHALL BE ESTABLISHED IN THE FIELD BY THE OWNER.

24. SOLID SLEEVES ARE SHOWN ON THE DRAWINGS FOR ALL CONNECTIONS TO EXISTING WATER MAIN. IF OUTER DIAMETER OF EXISTING WATER MAIN IS FOUND TO BE GREATER THAN THE MAXIMUM OUTER
- DIAMETER COMPATIBLE WITH SOLID SLEEVES, CONTRACTOR SHALL INSTALL A COUPLING TO COMPLETE CONNECTION WITH EXISTING WATER MAIN.

25. CONTRACTOR SHALL PLUG ENDS OF WATER MAINS TO BE ABANDONED IN PLACE WITH HYDRAULIC CEMENT. PLUG SEAL SHALL BE WATER-TIGHT. ALL COSTS ASSOCIATED WITH ABANDONING EXISTING WATER MAIN IN PLACE SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

26. NOTIFY THE LOWELL REGIONAL WATER UTILITY, LOWELL REGIONAL WASTEWATER UTILITY, LOWELL ENGINEERING DEPARTMENT, LOWELL DPW AND UTILITY COMPANIES PRIOR TO COMMENCING WORK TO ALLOW SUFFICIENT TIME TO LOCATE AND MARK THE LOCATION OF ALL BURIED UTILITIES. CONTRACTOR SHALL ALSO CONTACT "DIG SAFE", TELEPHONE NO. 888-344-7233, AT LEAST 72 HOURS PRIOR TO CONSTRUCTION. REPAIR OF ANY DAMAGED UTILITY WILL BE INCIDENTAL TO THE CONTRACT.

27. BRACING OF UTILITY POLES, WHERE REQUIRED, SHALL BE INCIDENTAL TO THE INSTALLATION OF THE WATER MAIN, NO SEPARATE PAYMENT SHALL BE MADE.

28. EXCAVATE TEST PITS TO DETERMINE LOCATION, PIPE DIAMETER (O.D.), AND PIPE MATERIAL FOR EXISTING UTILITIES, WHEN REQUESTED.

29. DO NOT STORE TOOLS, VEHICLES, MATERIALS, SUPPLIES, OR EQUIPMENT ON DRAINAGE STRUCTURES OR WITHIN 100 FEET OF WETLANDS OR RESOURCE AREAS.

30. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE WRITTEN NOTIFICATION TO ANY PROPERTY THAT WILL BE WITHOUT WATER DUE TO A SCHEDULED SHUTDOWN. CONTRACTOR SHALL DELIVER WRITTEN NOTIFICATION TO EACH PROPERTY AT LEAST 72 HOURS IN ADVANCE OF SCHEDULED SHUTDOWN. PROVIDE DRAFT OF NOTIFICATION TO THE CITY FOR REVIEW AND APPROVAL PRIOR TO DISTRIBUTING NOTIFICATION TO PROPERTIES.

31. SAWCUT ALL DRIVEWAYS, WALKWAYS, AND SIDEWALKS AT EDGE OF RIGHT OF WAY TO TRANSITION EXISTING GRADE TO FINISH GRADE.

32. SIDEWALK RESTORATION TO INCLUDE REPLACEMENT IN KIND OF EXISTING PRIOR TO CONSTRUCTION WITH RESPECT TO WIDTH AND MATERIALS. ALL SIDEWALK RESTORATION SHALL BE CONSTRUCTED TO THE SPECIFICATIONS SET FORTH IN THE COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF PUBLIC SAFETY, AAB, "RULES AND REGULATIONS" WHICH APPEAR IN THE CODE OF MA REG (C) 521 LMR 1.00.

33. EROSION AND SEDIMENTATION CONTROLS, IF NECESSARY, SHALL BE PROVIDED IN COMPLIANCE WITH THE MOST RECENT EDITION OF MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS AS PUBLISHED BY THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF RESOURCE PROTECTION.

34. CATCH BASIN SEDIMENT CONTROL DEVICES SHALL BE INSTALLED IN ALL CATCH BASINS ON THE PROJECT SITE. REMOVE COLLECTED SEDIMENT AS NECESSARY AND A MINIMUM OF ONCE PER MONTH.

35. THE CONTRACTOR SHALL NOT OPERATE EXISTING VALVES OR HYDRANTS IN THE DISTRIBUTION SYSTEM.

36. THE LRWU WILL OPERATE EXISTING VALVES AND HYDRANTS TO ISOLATE SECTIONS OF THE WORK.

37. PER SECTION 00 72 05 PART 4.04 A2d, CONTRACTOR SHALL REPAIR ANY DAMAGE TO UNDERGROUND FACILITIES RESULTING FROM THE WORK. REPAIRS TO DRAINAGE FACILITIES WITHIN THE MASSDOT ROADWAY SHALL BE MADE BY REPLACING DRAIN PIPES FROM STRUCTURE TO STRUCTURE.

38. AT ALL LOCATIONS WHERE NEW 30" CLDI WATER MAIN CROSSES EXISTING 24" CI WATER MAIN, COMPLETE REPLACEMENT OF 24" CI WATER MAIN WITH NEW 24 CLDI WATER MAIN TO THE EXTENTS SHOWN ON THE DRAWINGS, PRIOR TO THE INSTALLATION OF NEW 30" CLDI WATER MAIN.

ABBREVIATIONS

⊙	ADJ.	AT	ADJUSTABLE	L	LENGTH
ALUM.	ALUM.	ALUM.	ALUMINUM	L.L.V.	LONG LEG VERTICAL
APA	AMERICAN PLYWOOD ASSOCIATION			LB	POUND
APPROX.	APPROXIMATE			LG.	LONG
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS			LP	LOW POINT
B	BEAM	M.O.	MASONRY OPENING		
B.DG.	BORING	MAX.	MAXIMUM		
BOT	BUILDING	MECH.	MECHANICAL		
BV	BOTTOM	MH	MANHOLE		
	BUTTERFLY VALVE	MIN.	MINIMUM		
		MPH	MILES PER HOUR		
		MR	MONORAIL		
		MW	MONITORING WELL		
C	COLUMN	N	NORTHING		
C.E.	CONTINUOUS END	NIC	NOT IN CONTRACT		
CB	CATCH BASIN	N.T.S.	NOT TO SCALE		
CD	CONTROLLED DENSITY FILL	#	NUMBER		
CJ	CONTROL JOINT	NO.	NUMBER		
CLDI	CEMENT-LINED DUCTILE IRON	NOM.	NOMINAL		
CLR.	CLEAR	O.C.	ON CENTER		
CLF	CHAIN LINK FENCE	O.C.E.F.	ON CENTER EACH FACE		
OMP	CORRUGATED METAL PIPE	O.C.E.W.	ON CENTER EACH WAY		
OMU	CONCRETE MASONRY UNIT	O.D.	OUTSIDE DIAMETER		
COL.	COLUMN	O.I.T.	OPERATOR INTERFACE TERMINAL		
CONC.	CONCRETE	OZ.	OUNCE		
CONIT.	CONTINUOUS				
COR	CORNER	P	PLATE		
CORR.	CORRUGATED	PC	PROPERTY LINE		
CPE	CORRUGATED POLYETHYLENE	PCC	POINT OF CURVATURE		
CU	COPPER	PCF	POINT OF COMPOUND CURVE		
D	DIAMETER	PF	PER CUBIC FOOT		
D.E.	DISCONTINUOUS END	PI	POLYETHYLENE		
D.I.	DUCTILE IRON	PIV	POST INDICATOR VALVE		
DES.	DESIGNED	PRC	POINT OF REVERSE CURVE		
DIA.	DIAMETER	PSI	PER SQUARE INCH		
DIAG.	DIAGONALLY	PT	POINT OF TANGENCY		
DISCONT.	DISCONTINUOUS	PVC	POLYVINYL CHLORIDE		
DR.	DRAWN	PZ	PIEZOMETER		
DRI	DOUBLE RING INFILTRMETER				
DRWGS.	DRAWINGS	RCP	REINFORCED CONCRETE PIPE		
E	EASTING	REINF.	REINFORCEMENT		
EA.	EACH	RIBS	RAPID INFILTRATION BASINS		
EFFL.	EFFLUENT	S	SEWER		
EL.	ELEVATION	S.S.	STAINLESS STEEL		
ELECT.	ELECTRICAL	SCH.	SCHEDULE		
ELEV.	ELEVATION	SECT	SECTION		
EMBED.	EMBEDMENT	SHLDR.	SHOULDER		
EQ.	EQUALIZATION	SHT	SHEET		
EXP.	EXPANSION	SP. AL.	SPECIAL ALUMINUM		
F	FOOTING	SQ.	SQUARE		
FD	FLOOR DRAIN	SUP.	SUPPORT		
FF	FINISH FLOOR	TEMP.	TEMPERATURE		
FIN	FINISH	THD.	THREADED		
FIN. FLR.	FINISH FLOOR	TMB	TEMPORARY BENCH MARK		
FL.	FLANGE	TOC	TOP OF CONCRETE		
FM	FORCE MAIN	TP	TEST PIT		
FRP	FIBERGLASS REINFORCED PLASTIC	TYP.	TYPICAL		
FT.	FOOT	U.N.O.	UNLESS NOTED OTHERWISE		
FTG.	FOOTING	UGE	UNDERGROUND ELECTRIC		
	FITTING	UGT	UNDERGROUND TELEPHONE		
G	GAS	UV	ULTRAVIOLET		
GALV.	GALVANIZED	V	VELOCITY		
GV	GATE VALVE	VERT.	VERTICAL		
H	HATCH	W	WATER		
H.	HEIGHT	W	WIDE		
HOR.	HORIZONTAL	W/	WITH		
HORIZ.	HORIZONTAL	YR.	YEAR		
HP	HIGH POINT				
HVAC	HEATING, VENTILATING AND AIR CONDITIONING				
IMFO	INTEGRALLY MOLDED FLANGED OPENING				
INV.	INVERT				

CIVIL SYMBOLS

DESCRIPTION	EXISTING	PROPOSED
SANITARY SEWER MANHOLE	⊙	●
SANITARY SEWER SERVICE CLEANOUT	⊙ CO	● CO
STORM DRAIN MANHOLE	⊙	●
CATCH BASIN	⊙	●
TELECOMM MANHOLE	⊙	●
TELECOMM SERVICE BOX	⊙	●
ELECTRIC MANHOLE	⊙	●
TRANSFORMER	⊙	●
UTILITY POLE W/GUY	⊙	●
UTILITY POLE	⊙	●
LIGHTPOST	⊙	●
GAS METER BOX	⊙	●
GAS VENT	⊙	●
GAS GATE	⊙	●
REDUCER	⊙	●
WATER VALVE	⊙	●
CLOSED WATER VALVE	⊙ CV	● CV
CURB STOP	⊙	●
HYDRANT	⊙	●
WATER WELL	⊙	●
WATER METER BOX	⊙	●
SIGN	⊙	●
MAILBOX	⊙	●
FLAGPOLE	⊙	●
WETLAND HATCHING	⊙	●
CONIFEROUS TREE	⊙	●
DECIDUOUS TREE	⊙	●
STONE CHECK DAM	⊙	●
SURVEY STATION	⊙	●
TEMPORARY BENCH MARK	⊙	●
IRON PIN	⊙	●
MONUMENTS	⊙	●
SPOT ELEVATION	⊙	●
TEST PIT & NUMBER	⊙	●
BORING WITH SAMPLING & NUMBER	⊙	●
BORING WITHOUT SAMPLING & NUMBER	⊙	●
SURFACE WATER MONITORING LOC.	⊙	●
MONITORING WELL	⊙	●
PIEZOMETER	⊙	●
TEMPORARY HYDRANT	⊙	●
TEMPORARY GATE VALVE	⊙	●
TAP HOLE	⊙	●

EXISTING LINETYPES

CONTOUR (1' OR 2' INTERVAL)	-----122-----
SANITARY SEWER	-----S-----
FORCE MAIN	-----FM-----
STORM DRAIN	-----SD-----
DRAIN	-----D-----
WATER MAIN	-----W-----
UNDERGROUND ELECTRIC	-----E-----
UNDERGROUND TELEPHONE	-----T-----
UNDERGROUND TELEVISION	-----TV-----
GAS LINE	-----G-----
OVERHEAD ELECTRIC	-----OE-----
CULVERT	INV. IN. EL. XXX.XX INV. OUT. EL. XXX.XX
PROPERTY LINE	-----P-----
RIGHT OF WAY	-----R/W-----
EASEMENT	-----E-----
EDGE OF VEGETATION	-----X-----
FENCE	-----X-----
CENTERLINE	-----C-----
RETAINING WALL	-----R-----
STONEWALL	-----S-----
CURB	-----C-----
EDGE OF PAVEMENT	-----E-----
EDGE OF GRAVEL	-----G-----
GUARDRAIL	-----G-----
DRAINAGE DITCH / SWALE	-----D-----
EXTENT OF WETLANDS	-----W-----
RIVERFRONT 25FT BUFFER	-----R-----
TOP OF BANK	-----T-----
WETLAND 100FT BUFFER	-----W-----
LIMITS OF FLOOD ZONE	-----F-----
RAILROAD TRACKS	-----R-----

SHEET INDEX

SHEET NO.	SHEET TITLE
GENERAL	
G-001	COVER SHEET
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CIVIL	
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C-102	PAWTUCKET BOULEVARD PLAN AND PROFILE - 2
C-103	VARNUM AVENUE PLAN AND PROFILE - 1
C-104	VARNUM AVENUE PLAN AND PROFILE - 2
C-501	CIVIL DETAILS - 1
C-502	CIVIL DETAILS - 2
C-503	CIVIL DETAILS - 3
C-504	CIVIL DETAILS - 4
C-505	CIVIL DETAILS - 5

PROPOSED LINETYPES

CONTOUR (1' OR 2' INTERVAL)	-----122-----
CONTOUR (INDEX)	-----120-----
SANITARY SEWER	-----S-----
FORCE MAIN	-----FM-----
STORM DRAIN	-----SD-----
DRAIN	-----D-----
WATER MAIN	-----W-----
TEMPORARY WATER MAIN	-----T-----
UNDERGROUND ELECTRIC	-----E-----
UNDERGROUND TELEPHONE	-----T-----
UNDERGROUND TELEVISION	-----TV-----
GAS LINE	-----G-----
OVERHEAD ELECTRIC	-----OE-----
CULVERT	INV. IN. EL. XXX.XX INV. OUT. EL. XXX.XX
HOUSE SERVICE / LATERAL	-----S-----
PROPERTY LINE	-----P-----
RIGHT OF WAY	-----R/W-----
EASEMENT	-----E-----
EDGE OF VEGETATION	-----X-----
FENCE	-----X-----
CENTERLINE	-----C-----
RETAINING WALL	-----R-----
STONEWALL	-----S-----
CURB	-----C-----
EDGE OF PAVEMENT	-----E-----
EDGE OF GRAVEL	-----G-----
GUARDRAIL	-----G-----
DRAINAGE DITCH / SWALE	-----D-----
SILT FENCE AND STRAW WATTLES	-----S-----
100 FT RIVERFRONT OFFSET	-----R-----
AREA SUBJECT TO FLOODING	-----F-----

GENERAL NOTES, LEGEND, ABBREVIATIONS AND SHEET INDEX

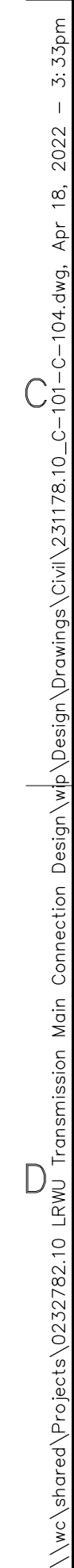
LOWELL REGIONAL WATER UTILITY
LOWELL, MASSACHUSETTS

DWSRF #6810
TRANSMISSION MAIN CONNECTION

JOB NO.: 232782.10
DATE: APRIL 2022
SCALE: AS NOTED
SHEET: 2 OF 11

G-002

BID SET - NOT FOR CONSTRUCTION



C-101

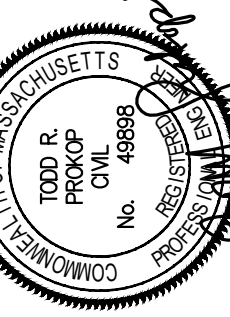
LOWELL, MASSACHUSETTS

DWSRF #6810
TRANSMISSION MAIN CONNECTION

C-101

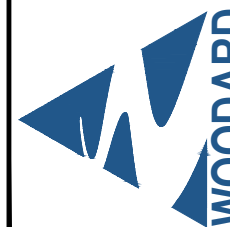


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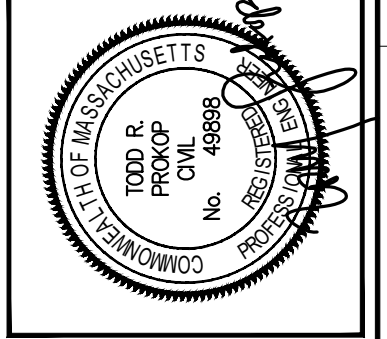


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REV.	DESCRIPTION	DATE

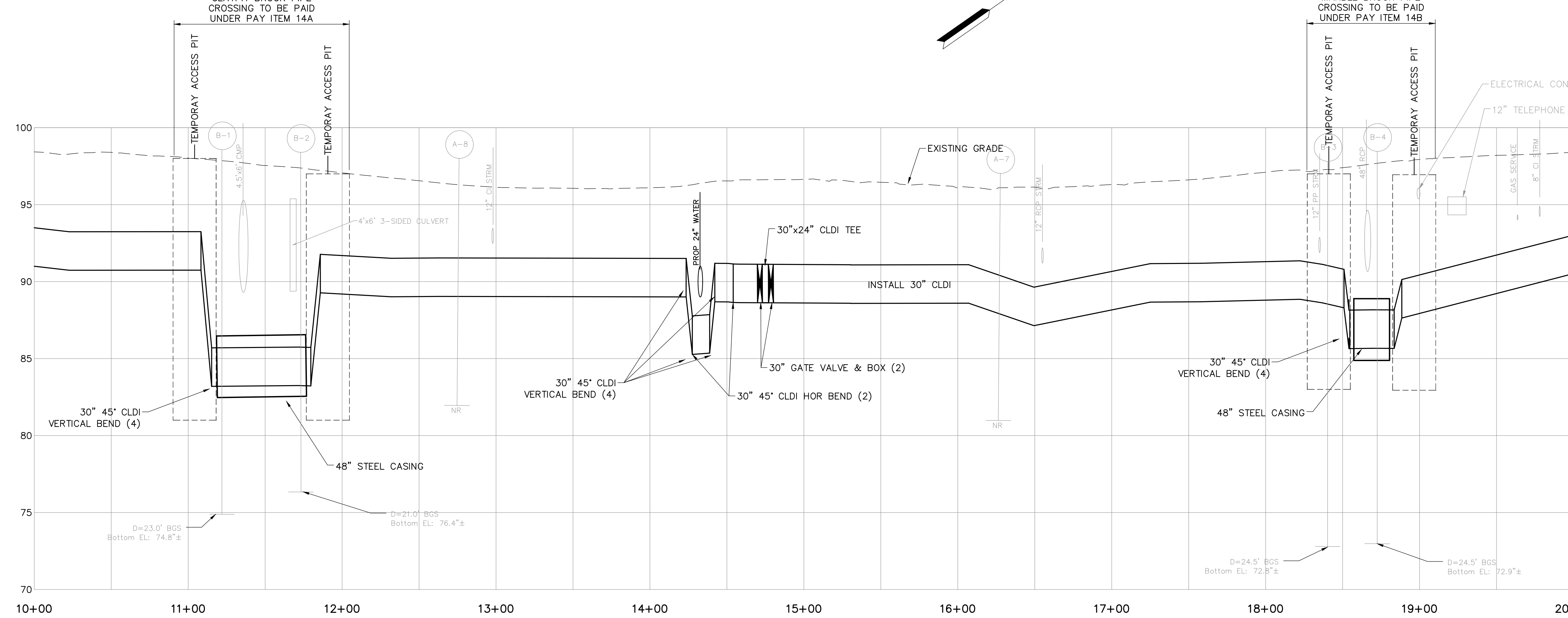
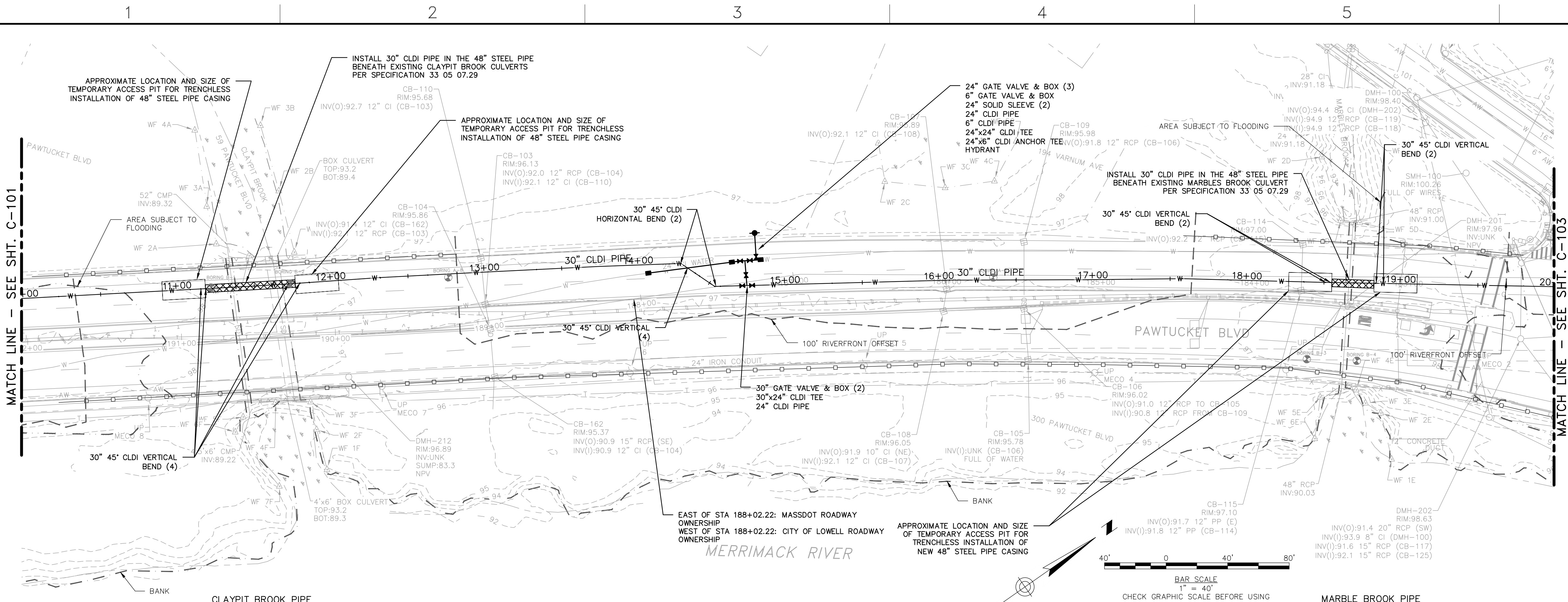
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CHECKED BY: TRP
DRAWN BY: CB/AFM
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LOWELL REGIONAL WATER UTILITY
LOWELL, MASSACHUSETTS

DWSRF #5810
TRANSMISSION MAIN CONNECTION

JOB NO.: 232782.10
DATE: APRIL 2022
SCALE: 1"=40'
SHEET: 4 OF 11

C-102



PROFILE STA. 10+00 TO STA. 20+00

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

BID SET - NOT FOR CONSTRUCTION



HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

C-103

LOWELL REGIONAL WATER UTILITY
LOWELL, MASSACHUSETTS

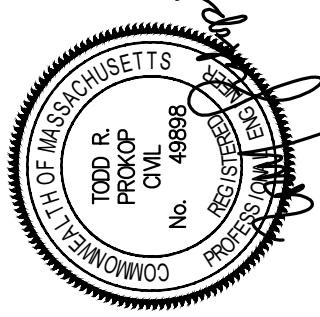
TRANSMISSION MAIN CONNECTION

DB NO.: 232782.10
DATE: APRIL 2022
SCALE: 1"=40'
SHEET: 5 OF 11

C-103

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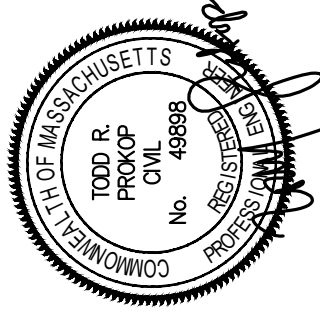
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HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

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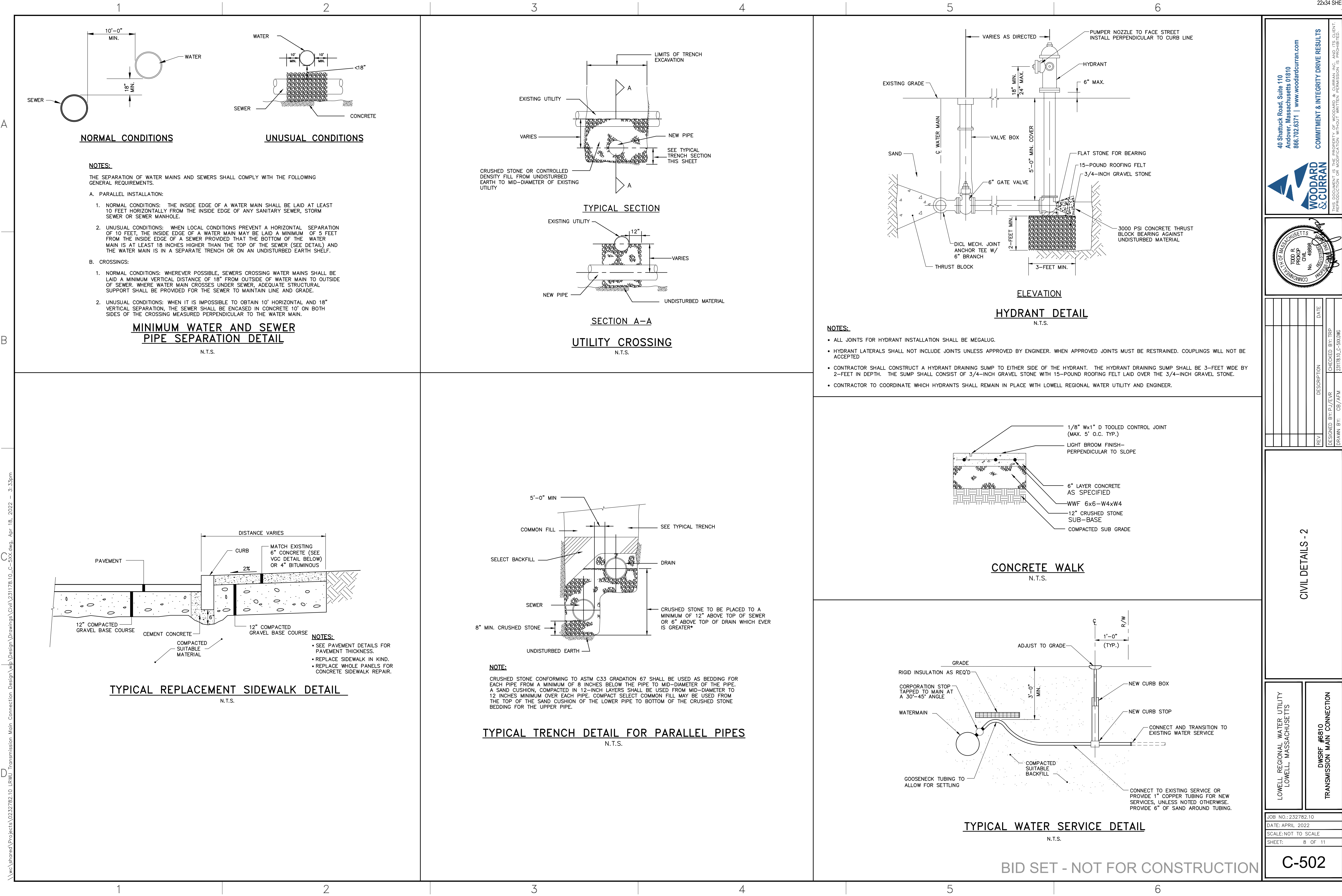


VARNUM AVENUE PLAN AND PROFILE - 2

DWSRF #6810
TRANSMISSION MAIN CONNECTION

SHEET: 6 OF 11

C-104



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COMMONWEALTH OF MASSACHUSETTS
TODD R. PROCTOR
Professional Engineer
No. 43898
Expiring 12/31/2025

REV.	DESCRIPTION	DATE

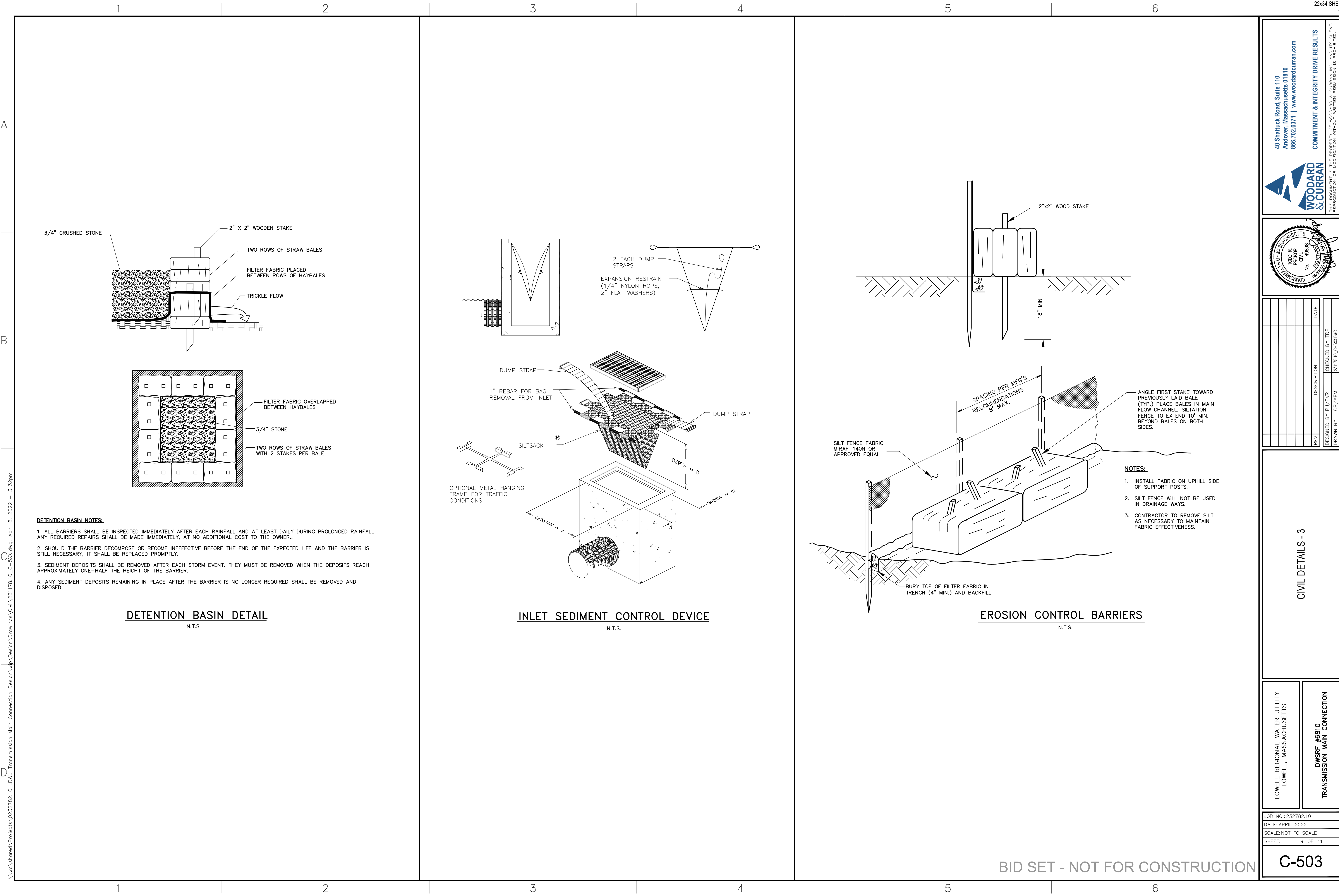
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CHECKED BY: TRP
DRAWN BY: CB/AFM
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LOWELL REGIONAL WATER UTILITY
LOWELL, MASSACHUSETTS

DWSRF #6810
TRANSMISSION MAIN CONNECTION

JOB NO.: 232782.10
DATE: APRIL 2022
SCALE: NOT TO SCALE
SHEET: 8 OF 11

C-502



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REV.	DESCRIPTION	DATE

DESIGNED BY: P/J/ELR
CHECKED BY: TRP
DRAWN BY: CB/AFM
231178.10.C-SXJWG

LOWELL REGIONAL WATER UTILITY
LOWELL, MASSACHUSETTS

DWSRF #6810
TRANSMISSION MAIN CONNECTION

JOB NO.: 232782.10

DATE: APRIL 2022

SCALE: NOT TO SCALE

SHEET: 9 OF 11

C-503

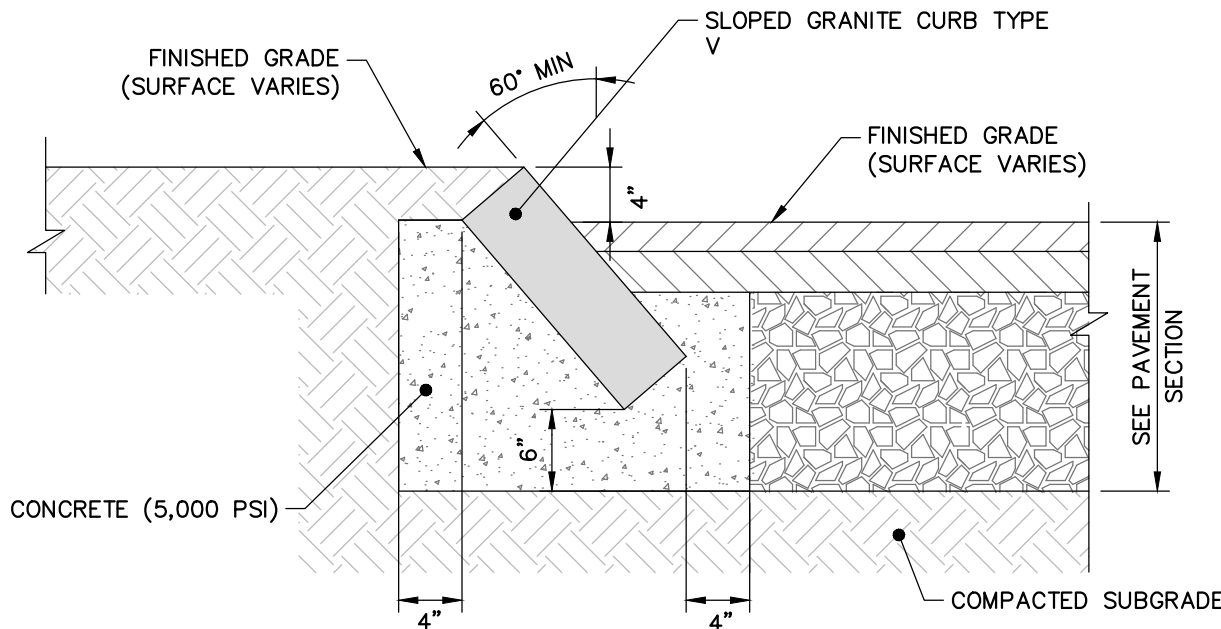
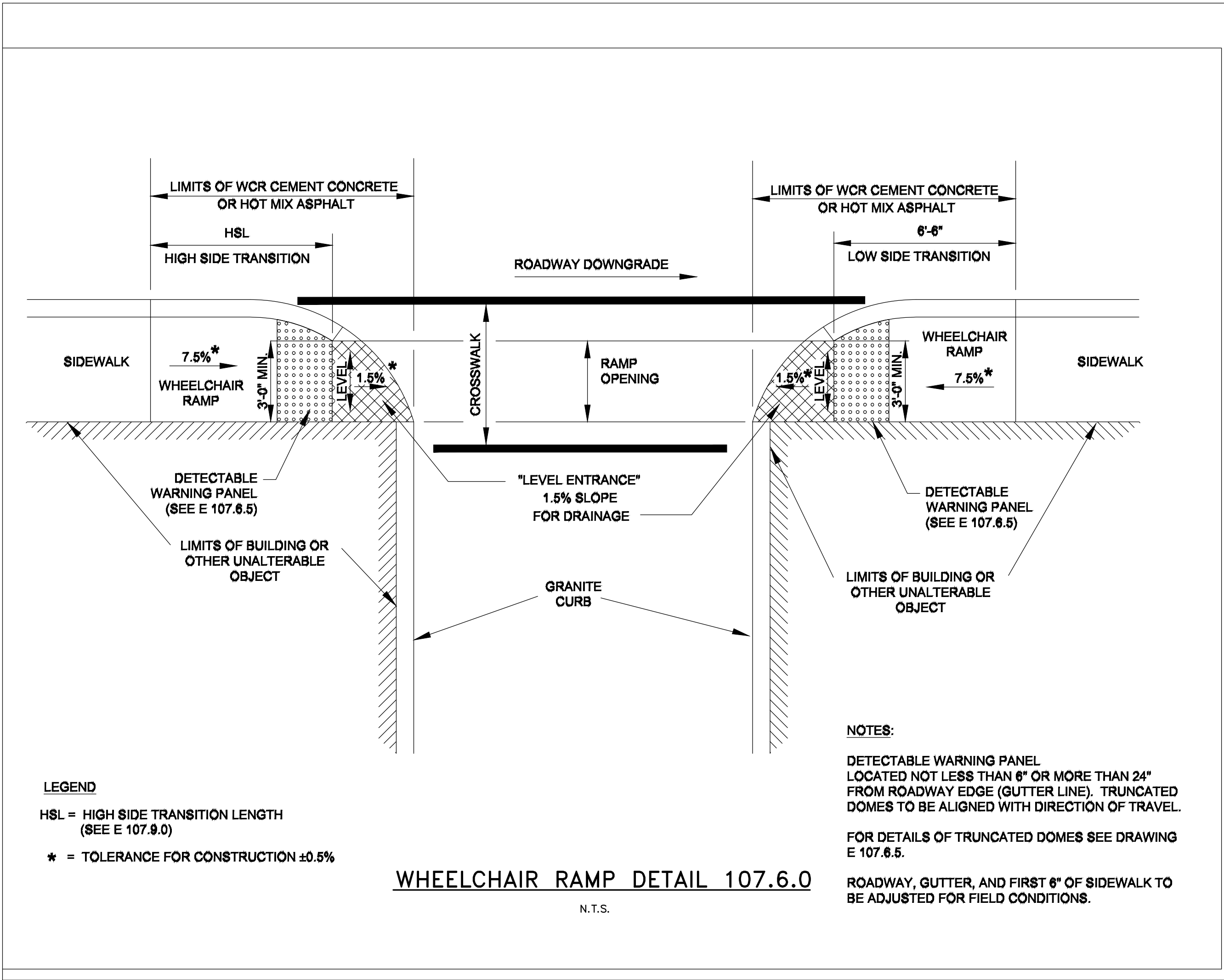
CIVIL DETAILS - 3

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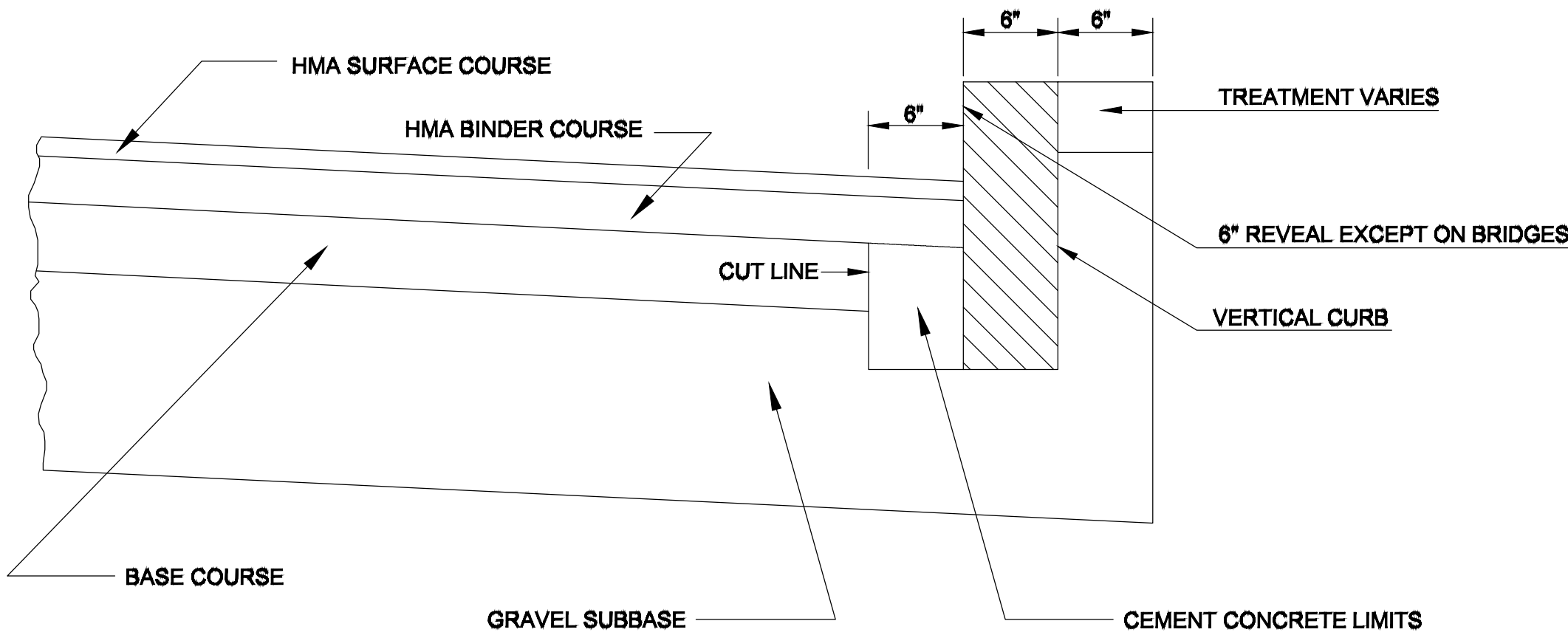
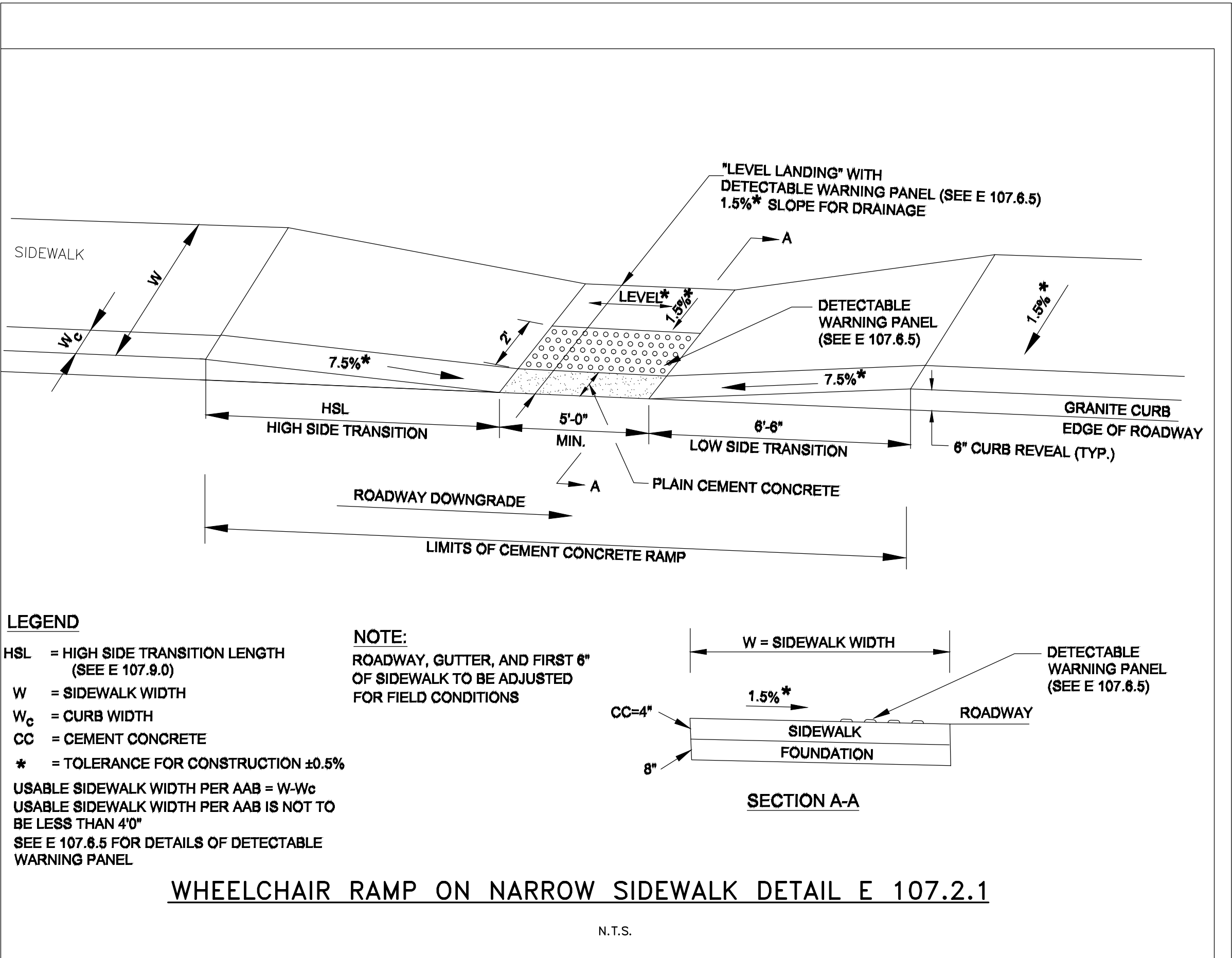
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D



- ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE TO THE DEPARTMENT UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS; ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT TO BE USED AS A SUBSTITUTE.
- THE REVEAL IS TO BE A MAXIMUM OF 4" UNDER ALL CONDITIONS, THE ANGLE IS TO BE A MINIMUM OF 60° FROM VERTICAL UNDER ALL CONDITIONS.



- NOTES:**
- THIS PROCEDURE IS APPLICABLE ONLY IF CURB IS TO BE SET AFTER BASE COURSE IS IN PLACE PRIOR TO BINDER AND TOP PLACEMENT.
 - CUT NEAT LINE 6" FROM CURB LINE AND REMOVE BASE AND GRAVEL. REPLACE WITH CEMENT CONCRETE.
 - ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED; ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT TO BE USED AS A SUBSTITUTE.

BID SET - NOT FOR CONSTRUCTION

40 Shattuck Road, Suite 110
Andover, Massachusetts 01810
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REVISIONS

NO.	DESCRIPTION	DATE

DESIGNED BY: P/J/ELR
DRAWN BY: CB/AFM

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23178.10.C-5XX.dwg

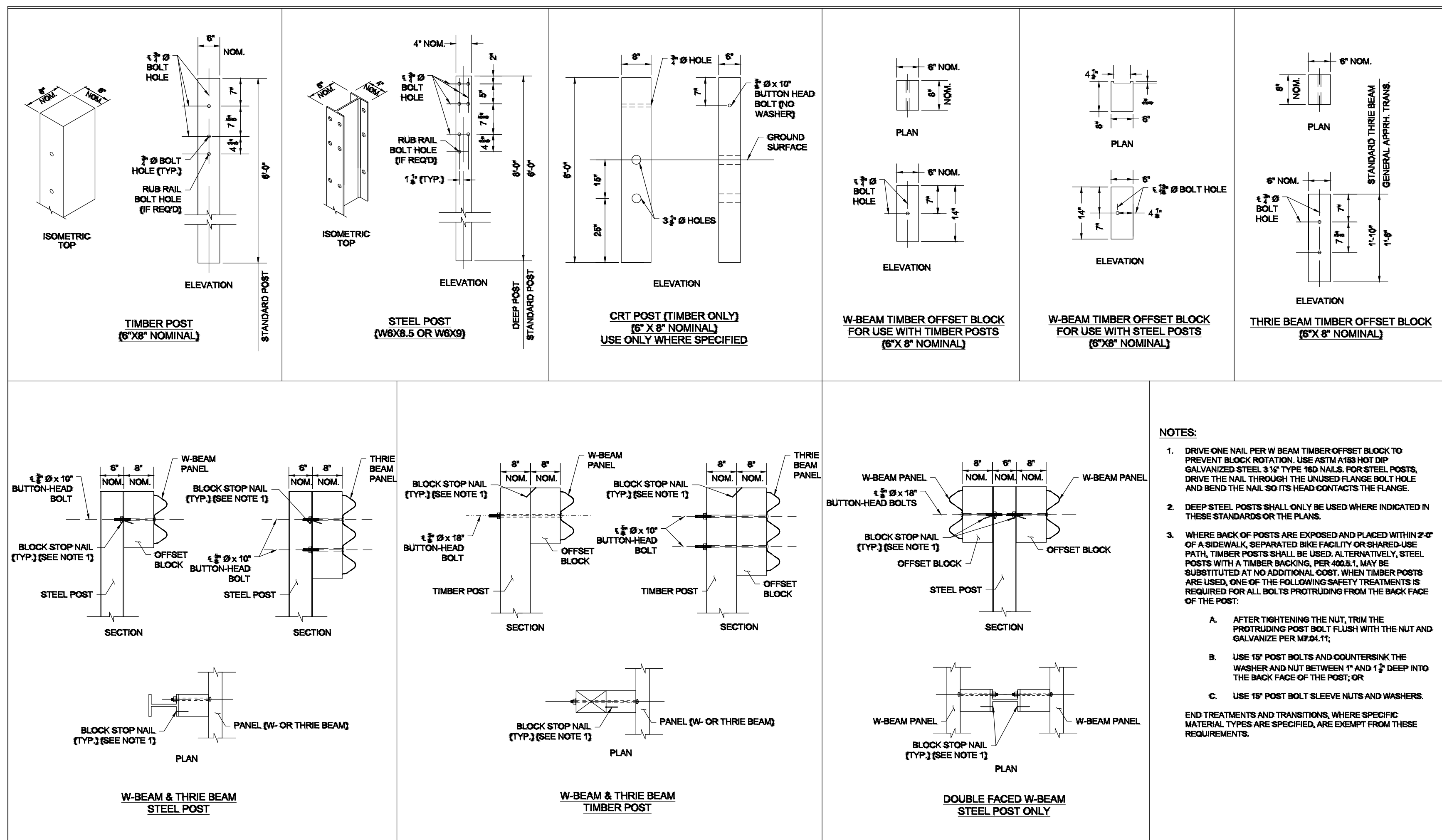
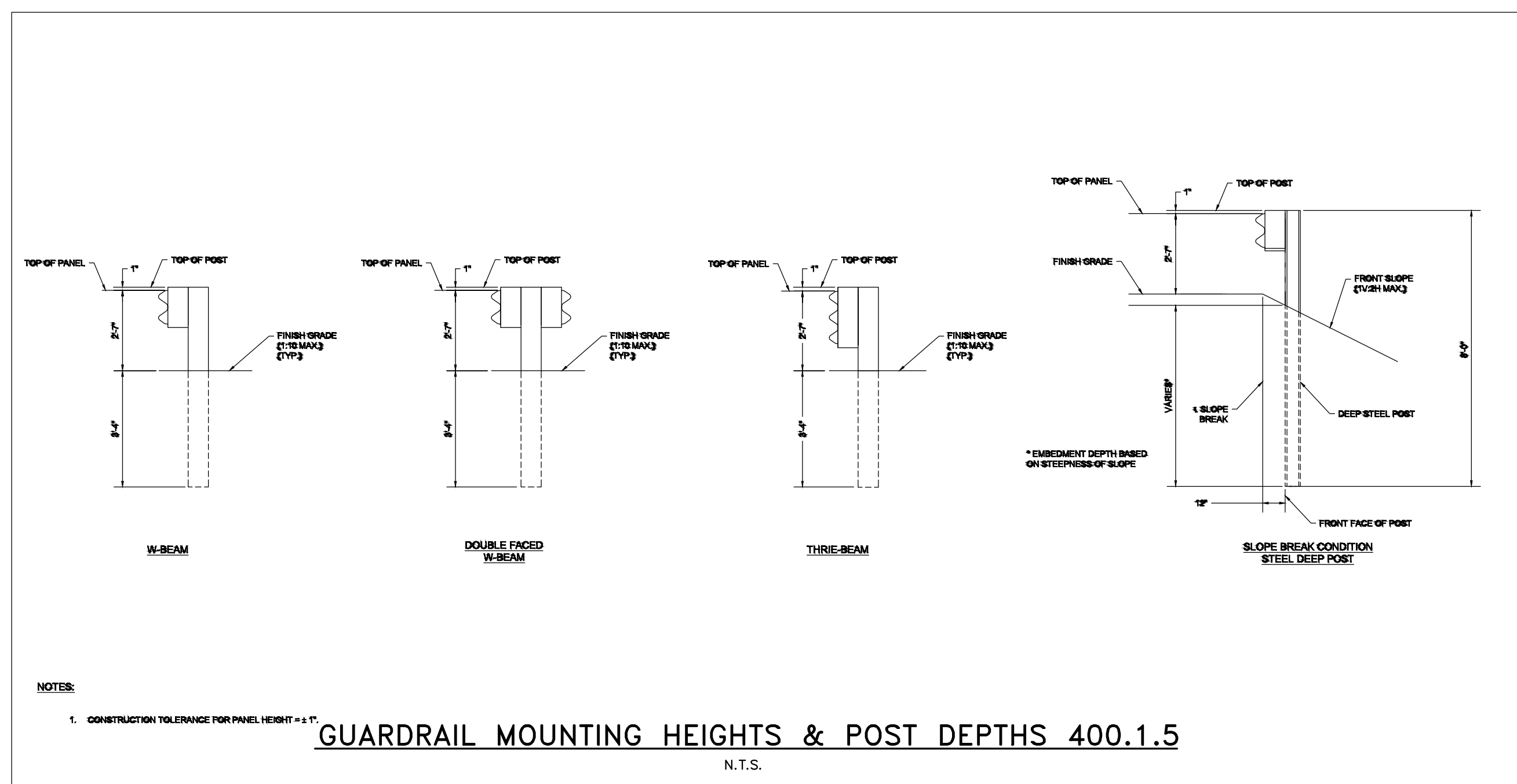
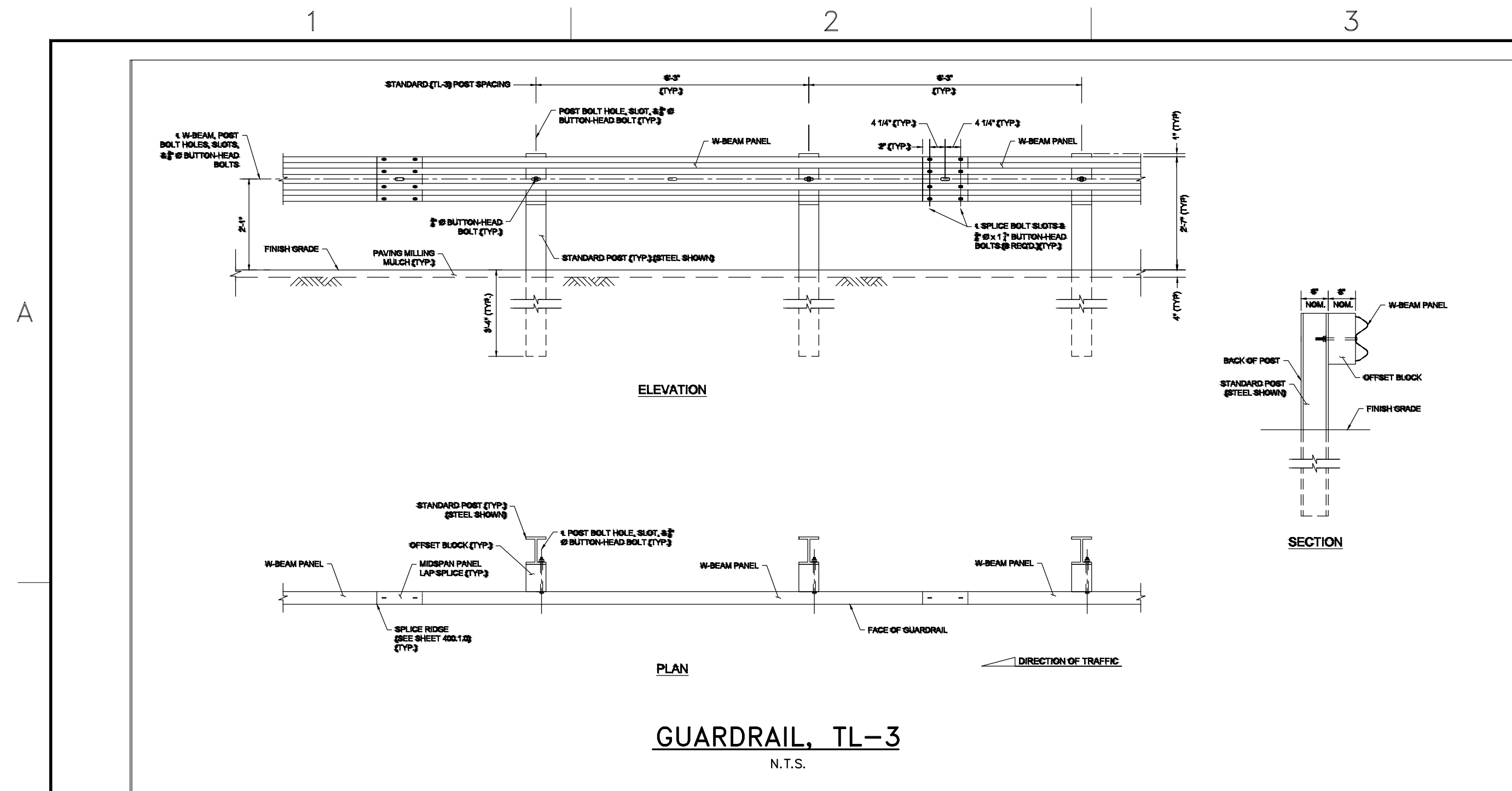
DATE:

LOWELL REGIONAL WATER UTILITY
LOWELL, MASSACHUSETTS

DWSRF #5810
TRANSMISSION MAIN CONNECTION

JOB NO.: 232782.10
DATE: APRIL 2022
SCALE: NOT TO SCALE
SHEET: 10 OF 11

C-504

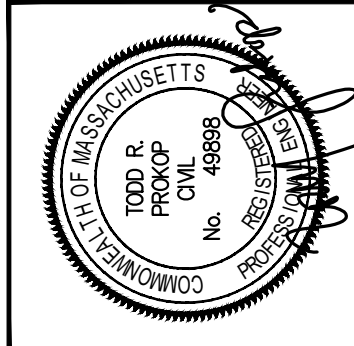


POST & OFFSET BLOCK DETAILS 400.1.4

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CIVIL DETAILS - 5

LOWELL REGIONAL WATER UTILITY
LOWELL, MASSACHUSETTS

DWSRF #6810
TRANSMISSION MAIN CONNECTION

JOB NO: 232782 10

DATE: APRIL 2022

SCALE: NOT TO SCALE

SHEET: 11 OF 11

C-505